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MEMORANDUM

To: Members of the Subcommittee on National Security, Emerging Threats, and International Relations

From: Vincent Chase, Chief Investigator

Date: June 19, 2003

Subject: Briefing memorandum for the hearing entitled, *Emerging Threats: Assessing Nuclear Weapons Complex Facility Security* scheduled for Tuesday, June 24th at 9:00 a.m., room 2247 Rayburn House Office Building followed by a **closed hearing** at 2:00 p.m., room 2203 Rayburn House Office Building.

PURPOSE OF HEARING

The purpose of the hearing is to examine the adequacy of security at nuclear weapon facilities within the Department of Energy (DOE).

HEARING ISSUE

- 1. How well do the Department of Energy and the National Nuclear Security Administration manage facility security programs?**
- 2. What has the Department of Energy done to update the Design Basis Threat (DBT) used to protect the nuclear weapons complex since September 11, 2001?**

BACKGROUND

The Department of Energy (DOE) was created in 1977¹ to deal with the oil price shocks of the 1970s. The department was formed from the consolidation of a number of agencies with energy-related missions. These agencies included the Energy Research and Development Administration (ERDA), the former Atomic Energy Commission (AEC), the Federal Energy Regulatory Commission, the Federal Energy Administration, and several programs in the Department of Interior.

The Department of Energy is responsible for developing the national energy plan by coordinating and administering the energy functions of the federal government. In addition, DOE is responsible for long-term, high-risk research and development of energy technology, federal power marketing, energy conservation, and the nuclear weapons program. In carrying out this multifaceted mission, the department employs a workforce of approximately 110,000 federal and contractor employees and maintains a complex of national laboratories, production facilities, and other buildings on over 2.5 million acres of land. **(Web Resource 1)** The DOE has requested a budget of \$23.376 billion for FY04, including approximately \$1.2 billion for security funding. **(Attachment 1)**

The Department of Energy, National Nuclear Security Administration (NNSA) and the Office of Energy, Science and Environment are responsible for the oversight, management and protection of nuclear weapons complex facilities. **(Attachment 2)** According to the General Accounting Office (GAO)², NNSA has requested \$584 million for security operations and the Office of Energy, Science and Environment security operations has requested \$415 million for security operations for FY 04.

The Department of Energy has four main missions:

- Ensuring a dependable energy supply for the American economy;
- Ensuring a secure, reliable nuclear deterrent for the nation's defense;

¹ The Department of Energy Organization Act, public law 95-91. The Department of Energy officially began operations on October 1, 1977. Pursuant to section 901 of the Act, President Jimmy Carter issued Executive Order 12009, prescribing October 1, 1977 as the effective date of the Act.

² Email Correspondence from the General Accounting Office dated June 9, 2003 in Subcommittees files.

- Improving environmental quality related to energy production, and
- Advancing science and technology in energy-related areas. (**Web Resource 2**)

In addition, DOE supplements private sector research efforts to enhance energy production, develop new and cleaner sources of energy, and improve energy conservation and efficiency. DOE's environmental quality efforts include cleaning up contaminated sites resulting from over 50 years of nuclear weapons production, supporting research to reduce contaminants that come from energy, and developing new, non-polluting and sustainable energy sources.

Over the last two decades, DOE has shifted emphasis and focus as the needs of the nation have changed. During the late 1970's, the department emphasized energy development and regulation. In the 1980's, nuclear weapons research, development, and production took a priority. Since the end of the Cold War, the department has focused on environmental clean up of the nuclear weapons complex, nonproliferation and stewardship of the nuclear stockpile, energy efficiency and conservation, and technology transfer and industrial competitiveness.

Department of Energy: Security and Oversight Offices

Department of Energy, Office of Security (**Web Resource 3**) develops and promulgates DOE security policy. In addition, the office is responsible for developing the Design Basis Threat (DBT) to identify and characterize the range of potential adversary threats to Department of Energy programs and facilities.

To carry out this mission, the Office of Security develops strategies and policies governing the protection of critical assets entrusted to the Department of Energy.

Specifically the Office of Security is:

- Responsible for managing the DOE Safeguards and Security Technology Development Program.

- Developing policies designed to protect national security and other critical assets entrusted to the Department of Energy.
- Analyzing department-wide safeguards and security policy and standards designed to protect national security and other critical assets.

The Department of Energy, Office of Independent Oversight and Performance Assurance (OA) (**Web Resource 4**) provides assurance to the Secretary of Energy that department programs have adequate security in place. OA provides:

- An independent assessment of the effectiveness of security policies and programs;
- cyber security; emergency management; environment, safety and health (ES&H); and
- other critical functions of immediate interest to the Secretary, the Deputy Secretary, or the Administrator of the National Nuclear Security Administration (NNSA). (**Attachment 3**)

OA is organizationally independent of the DOE offices that develop and implement security policy and programs. This allows OA to objectively observe DOE operations and provide unbiased information to DOE senior management. OA employs an oversight process that emphasizes performance and performance testing for evaluating the effectiveness of contractor safeguards and security performance.

To carry out this function, OA periodically assesses both federal and contractor operations for improvement including the use of force-on-force exercises. The office also performs follow-up reviews to ensure corrective actions are effective and weaknesses in safeguards and security are appropriately addressed.

OA also conducts DOE and NNSA inspections to determine the effectiveness of safeguards and security policies and programs; identifies and analyzes safeguards and security policy issues, trends and directions; and develops inspection and assessment methods and technologies.

In addition to security oversight provided by the Office of Security and Office of Independent Oversight and Performance Assurance, Department of

Energy (DOE) program offices (NNSA and Office of Energy, Science and Environment), have the day-to-day oversight responsibility for contractor's security programs. The program offices conduct annual security surveys or surveillances at sites under their jurisdiction.

National Nuclear Security Administration (NNSA)

As a result of the 1977 reorganization of federal energy-related programs, the Department of Energy gained a sizable defense component. The Department of Energy has been responsible for developing, producing, and maintaining nuclear weapons, and insuring the security of the nuclear weapons complex.

In 2000, the National Nuclear Security Administration (NNSA)³ **(Attachment 4)** was established as a semi-autonomous agency within the Department of Energy. **(Web Resource 5)** The NNSA is responsible for the research and development, production, maintenance, storage, and transportation of the nation's nuclear weapons arsenal. Congress established the NNSA to correct long-standing management and security problems at the Department of Energy including ineffective controls over foreign visitors, weaknesses in efforts to control and protect classified and sensitive information, lax physical security controls, ineffective management of personnel security clearance programs, and weaknesses in tracking and controlling nuclear materials. **(Attachment 5)**

NNSA was established to be distinct from DOE. To clearly show the separation of NNSA management from DOE's organization, Congress laid out chains of command in both DOE and NNSA that would insulate NNSA from DOE management and decision-making, except at the level of the NNSA Administrator.

The nuclear weapons program is a multifaceted and hazardous operation. The Department of Energy must maintain in readiness a nuclear arsenal, maintain aging facilities, dismantle surplus weapons, dispose of excess radioactive materials, clean up surplus facilities, and construct new facilities. **(Attachment 6)**

³ National Security Administration Act, Public Law 106-65, October 5, 1999.

The National Nuclear Security Administration maintains the safety, security, and reliability of the nation's nuclear stockpile, manages nuclear non-proliferation efforts to reduce the threats from weapons of mass destruction (WMD), and provides the U.S. Navy with nuclear propulsion plants. The United States last produced a new nuclear weapon in 1990 and last conducted a nuclear test in 1992.

The mission of the National Nuclear Security Administration is:

- To enhance United States national security through the military application of nuclear energy.
- To maintain and enhance the safety, reliability, and performance of the United States nuclear weapons stockpile, including the ability to design, produce, and test, in order to meet national security requirements.
- To provide the United States Navy with safe, militarily effective nuclear propulsion plants and to ensure the safe and reliable operation of those plants.
- To promote international nuclear safety and nonproliferation.
- To reduce global danger from weapons of mass destruction.
- To support United States leadership in science and technology.

Nuclear weapons research, development, and production are conducted at eleven NNSA nuclear weapons facilities.⁴ These facilities are operated and maintained by outside contractors. **(Attachment 7)** Because these facilities house special nuclear materials used in the making of nuclear weapons and nuclear weapons components, DOE and the NNSA administer security programs to protect (1) against theft, sabotage, espionage, terrorism, or other risks to national security and (2) the safety and health of DOE employees and the public.

⁴ DOE, Office of Energy, Science and Environment also maintain facilities that contain nuclear material or nuclear waste by-products including Hanford, Rocky Flats, and Idaho National Engineering Laboratory.

Currently, the nuclear weapons complex has four production sites:

- The Pantex Plant, Amarillo, Texas
- The Y-12 Plant, Oak Ridge, Tennessee
- The Kansas City Plant, Kansas City, Missouri, and
- The Savannah River Site, Aiken, South Carolina (**Attachment 8**)

In addition, to the production sites, the complex includes the Nevada Test Site and three national laboratories that design nuclear weapons. These include:

- Lawrence Livermore National Laboratory, Livermore California
- Los Alamos National Laboratory, Los Alamos, New Mexico, and
- Sandia National Laboratory, Albuquerque, New Mexico and Livermore, California. (**Attachment 9**)

NNSA relies on site contractors for implementation of safeguards and security programs. The contractors are responsible for conducting day-to-day security activities and adhering to DOE policies for operation of the complex's production and laboratory facilities. Many of these sites possess Category I special nuclear material. Category I material includes plutonium and uranium in the following forms:

- Assembled nuclear weapons and test devices;
- Products containing high concentrations of plutonium or uranium, such as major nuclear components, and recastable metal; and
- High-grade materials, such as carbides, oxides, solutions, and nitrates.

The risks this radioactive material poses vary, but include the potential for sabotage, or theft for illegal use in a nuclear weapon. Because these materials pose such risks, NNSA's management of the safeguards and security program, which includes overseeing contractor activities, is essential to prevent an unacceptable, adverse impact on national security.

National Nuclear Security Administration (NNSA) Security Office(s)

The Department of Energy, Office of Security guides NNSA's safeguards and security program. NNSA is responsible for ensuring contractors' security activities are effective and conform to DOE orders and policy

requirements. In conducting this oversight, NNSA generally uses certain key processes intended to identify specific security weaknesses at laboratory and production facility sites and ensure weaknesses are corrected. These processes include annual comprehensive surveys and ongoing reviews of contractor security programs.

The Office of Defense Nuclear Security and the Office of Defense Nuclear Counterintelligence are responsible for NNSA security activities. (**Web Resource 5**) These offices administer and manage security and counterintelligence functions within NNSA. Security activities are also carried out at NNSA site offices at the national laboratories, and production facilities.

The National Nuclear Security Administration (NNSA), Office of Defense Nuclear Security is primarily responsible for developing the agency's security programs, including protection, controlling, and accounting for nuclear material and ensuring physical security for all facilities in the complex.

In addition, NNSA's Office of Facilities and Operations is responsible for the Nuclear Safeguards and Security Program, which oversees the implementation of safeguards and security in NNSA facilities. The office is expected to integrate and defend the budget for safeguards and security and ensure program components can achieve mission objectives. Through various contract mechanisms, NNSA provides financial incentives for contractor performance. NNSA assesses this performance based on the extent contractors meet performance standards, which are established in annual performance plans.

Design Basis Threat (DBT)

The Design Basis Threat identifies and characterizes potential attacks against DOE programs and facilities. The DBT is developed from postulated threats (vulnerabilities) developed by the intelligence community as the possible threats against DOE and the nuclear weapons complex. The DBT is used to:

- Develop overall Safeguards and Security program requirements;

- Provide the basis for site specific safeguards and security program planning, implementation, and facility design; and
- Provide the basis for evaluating the effectiveness of systems that are implemented.

After the events of September 11, 2001, DOE began to reassess and improve the physical security of the nuclear weapons complex and other DOE sites containing Category 1 nuclear material. In May 2003, the Department of Energy updated the DBT. Reflecting the post-September 11, 2001 environment, the 2003 DBT is substantially different and a more demanding document than the previous DBT. (**Attachment 10**)

According to GAO, key differences from the 1998 DBT include the following:

- *Increased adversary threat levels.* The 2003 DBT increases the terrorist threat levels for the theft of the department's highest value assets special nuclear material, although not in a uniform way. The 1999 DBT required DOE and NNSA sites to protect against only one terrorist threat level. Under the 2003 DBT however, the theft of a nuclear weapon or test assembly is judged to be more attractive to terrorists, and sites that have these assets are required to defend against a substantially higher number of adversaries than are other DOE and NNSA sites that possess other forms of Category I special nuclear material. For example, the Pantex Plant, which, among other things, assembles and disassembles nuclear weapons, is required to defend to a higher level than sites such as Los Alamos or Y-12, both of which fabricate nuclear weapons components. DOE calls this a graded threat approach.
- *Specific protection strategies.* In line with the graded threat approach and depending on the type of materials they possess and the likely mission of the terrorist group, sites are now required to implement specific protection strategies, such as denial of access, denial of task, or containment with recapture for their most sensitive facilities and assets.
- *Wider range of terrorist objectives.* The 2003 DBT recognizes a wider range of terrorist objectives, particularly in the area of radiological,

chemical, and biological sabotage. The 2003 DBT requires the development of protection strategies for a range of facilities, such as some radioactive waste storage areas, that were not covered under the previous DBT.

- *Complexity.* With a graded approach and broader coverage, the new DBT is a more complex document than its predecessor. The 1999 DBT was 9 pages long, while the 2003 DBT is 48 pages long.

In October 2001, the Subcommittee requested the General Accounting Office undertake a study about the adequacy of safeguards and security at the four nuclear weapons production sites and three national laboratories that design nuclear weapons. GAO is expected to release a new report, *Nuclear Security: NNSA Needs to Better Manage Its Safeguards and Security Program*, (GAO-03-471) (**Attachment 11**) at the June 24th hearing and testify about how well DOE/NNSA are positioned to protect the nuclear weapons complex and operations from today's threat.

DISCUSSION OF HEARING ISSUE(S)

1. How well does the National Nuclear Security Administration manage facility security programs?

According to GAO, NNSA has not been effective in managing the safeguards and security program, and therefore, cannot assure the nuclear weapons complex is fully secure.

Specifically, GAO states the roles and responsibilities for NNSA headquarters and site operations are not clearly defined because the NNSA management structure is still in a state of flux. GAO argues this lack of clear delineation of responsibility between NNSA headquarters and the site offices is causing confusion. As a result, site offices are uncertain about how to conduct their safeguards and security responsibilities.

In addition, according to GAO, NNSA has not yet developed a *Functions, Responsibility, and Authorities Manual*, an organizational tool used by federal managers for defining roles and responsibilities. This manual is crucial to establish clear lines of authority and responsibility. DOE plans to have the manual finalized sometime in 2003. In the meantime, site offices

have expressed frustration because they have not received formal notification about changes in their safeguards and security oversight responsibilities.

NNSA disagrees with GAO's conclusions regarding the confusion over the roles and responsibilities between NNSA headquarters and site offices. According to NNSA, the department has made significant progress not only in the structure of the safeguards and security organization, but throughout the entire organization. NNSA claims to have strengthened all lines of authority to provide for accountability at all levels of NNSA citing their new management philosophy to achieve effective efficiencies that include implementing best practices or changing less efficient processes.

In addition, NNSA argues there is a sixty-year base of safeguards and security program policies, orders, and organizational roles and responsibilities that were not suspended during the stand-up of NNSA.

Another area of concern raised by GAO is the use of inconsistent assessments of contractor security activities. According to GAO this lack of consistency occurs in part because site offices have assumed new oversight responsibilities without clear guidance from NNSA headquarters on how to carry out these responsibilities.

NNSA uses both survey and surveillance methods for assessing security. A survey provides for a comprehensive annual review by a team of experts of contractor safeguards and security activities and generally takes two weeks.

In contrast, surveillance relies on a single or small number of NNSA site officials overseeing one or more aspects of the contractor's security activities throughout the year. The documentation from a surveillance may be used as part of a survey. GAO argues that by relying on the surveillance method, NNSA has less assurance that it knows the full condition of security at NNSA sites and therefore cannot identify deficiencies. In addition, the DOE, Office of Security believes reliance on the surveillance method is not consistent with DOE orders calling for a comprehensive survey of a contractor's security performance. Finally, GAO believes NNSA lacks sufficient subject matter experts to use the surveillance method effectively.

NNSA disagrees with GAO's conclusions regarding the appropriate manner in which site security activities are assessed and the comprehensiveness of those assessments. According to NNSA, the use of the surveillance method is only a part of the planned oversight and evaluation activities, and areas that are not addressed in a surveillance cycle are automatically included in the next surveillance cycle. NNSA argues the effective use of personnel between NNSA site offices and support service contractors (matrix support) affords sufficient well-qualified subject matter experts for conducting surveillance activities.

According to GAO, NNSA contractors have not consistently prepared effective, formal root cause analyses when developing corrective action plans for identified deficiencies. GAO found that less than half of the contractors had performed the required root cause analysis. In some cases, the root cause analysis was poorly prepared. This resulted in confusion and contradictions for correcting site security deficiencies.

In addition, DOE policy requires other analyses and assessments when planning corrective actions. These include risk assessments and cost-benefit analyses. GAO found less than 25 percent of the corrective plans reviewed contained these documents. GAO believes this lack of consistency when developing corrective plans will continue without effective NNSA guidance for corrective actions.

NNSA agreed with the GAO's findings concerning the need to improve corrective action practices and has issued a guidance letter to site offices that clarifies analysis and documentation requirements.

GAO found NNSA has insufficient staff with expertise to effectively oversee contractors and conduct annual surveys. GAO found some site offices are experiencing difficulty in filling positions in order to carry out oversight activities because some sites are less desirable than others and because NNSA has imposed a hiring freeze. Some of these positions are for key security specialists needed for conducting physical security inspections. GAO recommended NNSA develop and implement a plan to effectively allocate staff to ensure security oversight.

According to NNSA, where critical vacancies exist, support from other site offices and headquarters are all available options to assure each NNSA site

has the appropriate skills mix to effectively execute safeguards and security responsibilities.

2. What action has the Department of Energy taken to develop the Design Basis Threat (DBT) to protect the nuclear weapons complex since September 11, 2001?

As part of the Subcommittee review, GAO was ask to determine the DOE's future safeguards and security requirements. In determining future security requirements, DOE develops the design basis threat (DBT), which lists likely security risks. Initially, DOE "refused" to provide GAO with access to the draft DBT documents. Lack of access would have prevented GAO from fully answering the Subcommittee's questions regarding future security requirements.

DOE later agreed to give GAO the documents requested, however, because of this delay GAO was not able to include DBT issues in their report. The DBT will be the subject of a follow up report to be issued in July 2003. However, GAO is prepared to testify and discuss what they did find from their review of the 2003 DBT and plan documents.

Some are asking questions regarding the length of time it will take to implement the 2003 DBT. Current projections call for the new DBT to be fully implemented by 2005. This raises concerns regarding NNSA's preparedness to address potential threats post-September 11th.

Others have questioned whether the new DBT was developed based on what is achievable budget-wise versus the postulated threat. Some have indicated DOE has not prepared or budgeted the resources needed to implement the 2003 DBT.

WITNESS TESTIMONY

PANEL ONE

Robin M. Nazzaro, Director, General Accounting Office will discuss the report *Nuclear Security: NNSA Needs to Better Manage Its Safeguards and Security Program*, (GAO-03-471). The report will be release during the hearing. GAO will testify how well DOE/NNSA are positioned to protect the nuclear weapons complex and operations from today's threat and why NNSA has not been fully effective in managing the nuclear weapons complex safeguards and security program.

Glenn S. Podonsky, Director, Office of Independent Oversight and Performance Assurance, Department of Energy will testify about the effectiveness of contractor performance under the Nuclear Safeguards and Security Program.

PANEL TWO

Ambassador Linton F. Brooks, Administrator, National Nuclear Security Administration, Department of Energy will the testify about the management of NNSA nuclear defense programs and NNSA's responsibility for ensuring the safety, security and reliability of the nation's nuclear stockpile.

Joseph S. Mahaley, Director, Office of Security, Department of Energy will testify about the development of the post September 11th Design Basis Threat (DBT) including the relationship of the DBT to the postulated threat, plan implementation, the potential cost of the plan and timeframes for the implementation of the plan.

PANEL THREE

Danielle Brian, Executive Director, Project on Government Oversight will testify about nuclear weapons complex, security problems, and possible solutions.

Ronald E. Timm, President, RETA Security is a DOE security contractor. RETA Security provided technical support to DOE's Office of Safeguards and Security. Mr. Timm will testify about facility security and his role associated with evaluating site safeguards and security planning.

ATTACHMENTS

1. Department of Energy, fiscal year 2004 Budget Request Summary.
2. Department of Energy, *Organization Chart*, December 2, 2002.
3. The Department of Energy, Office of Independent Oversight and Performance Assurance (OA), *Mission Statement and Organization Charts*.
4. National Nuclear Security Administration (NNSA), *Organization Chart*, May 29, 2003.
5. *Department of Energy: Views on DOE's Plan to Establish the National Nuclear Security Administration*, Testimony of Gary L. Jones, Associate Director, General Accounting Office, GAO/T-RCED-00-113, March 2, 2000.
6. Defense Nuclear Facilities Safety Board, *Thirteenth Annual Report to Congress*, February 2003.
7. Department of Energy/National Nuclear Security Administration (DOE/NNSA), *Nuclear Weapons Complex Facilities*.
8. The National Nuclear Security Administration (NNSA), *Nuclear Weapons Production Facilities*.
9. The National Nuclear Security Administration (NNSA), *National Laboratories*.
10. *Design Basis Threat for the Department of Energy Programs and Facilities*, (UNCLASSIFIED), Short Title: Unclassified Design Basis Threat, U.S. Department of Energy, Office of Safeguards and Security, December 1998.
11. **(DRAFT REPORT)** *NUCLEAR SECURITY: NNSA Needs to Better Manage Its Safeguards and Security Program*, (GAO-03-471), May 2003.

WEB RESOURCES

1. Fiscal Year 2004 BUDGET OF THE U.S. GOVERNMENT, 108th Congress, 1st Session...H. Doc.108-3, Volume 1.
<www.whitehouse.gov/omb/budget>
2. The Department of Energy, *Our History*,
< <http://www.energy.gov/aboutus/history/overview.hist.html>.>

3. The Department of Energy, Office of Security
< <http://www.so.doe.gov/index.cfm?fuseaction=home.aboutSO> >
4. The Department of Energy, Office of Independent Oversight and Performance Assurance (OA)
< <http://www.oa.doe.gov/mission/mission.html> >
5. The National Nuclear Security Administration (NNSA), *About NNSA*,
<<http://www.nnsa.doe.gov>>

WITNESS LIST

PANEL ONE

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